

MONTHLY WEATHER REVIEW.

VOL. XI.

WASHINGTON, D. C., JULY, 1883.

No. 7.

INTRODUCTION.

The general weather conditions which prevailed over the United States and Canada during July, 1883, are presented in this REVIEW, based upon reports received from the regular stations of the Signal Service, from the Canadian Meteorological Service, and from co-operating state weather services and voluntary observers.

The following may be mentioned as the most noteworthy meteorological features of the month:

The large deficiencies in the monthly rainfall in the southern states and in the northern districts west of the 92d meridian resulted in drought in many localities, the most serious occurring in the eastern Gulf states. A comparison of the average precipitation for the several districts in the cotton region with that of July, 1882, shows deficiencies ranging from 0.69 inch in the district of Little Rock to 6.82 inches in the district of Vicksburg.

The mean temperature has been below the average in all parts of the United States, except on the Pacific coast and in the south Atlantic and east Gulf states, but the departures have not been unusually marked.

The severest local storms of the month occurred on the 12th and 13th, from Indiana westward to the eastern portions of Nebraska and Kansas, and on the 21st in Minnesota, Wisconsin, and Michigan.

Violent electrical storms were of great frequency, and numerous instances of serious damage by lightning have been reported.

The ice-chart, compared with that of June, shows that there has been a marked change in the extent of the ice region, the eastern limit having moved about two degrees to the westward, and, compared with the ice-chart of July, 1882, shows a great change in the positions of the limits of the ice region, and also a very marked diminution in the number of icebergs observed.

In the preparation of this REVIEW, the following data, received up to August 20th, have been used; viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and twenty-two Signal Service stations and thirteen Canadian stations, as telegraphed to this office; one hundred and fifty-four monthly journals, and one hundred and thirty-eight monthly means from the former, and thirteen monthly means from the latter; two hundred and eighteen monthly registers from voluntary observers; fifty monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the local weather services of Illinois, Indiana, Iowa, New Jersey, and Tennessee, and of the

Central Pacific railway company; trustworthy newspaper extracts; and special reports.

ATMOSPHERIC PRESSURE.

[Expressed in inches and hundredths.]

The distribution of mean atmospheric pressure for the month of July, 1883, determined from the tri-daily telegraphic observations of the Signal Service, is shown by the isobarometric lines on chart iii.

The regions of greatest mean pressure occupy about the same positions as in the preceding month, viz: the north Pacific coast, and the south Atlantic and Gulf states, but over the north Pacific coast region the pressure has decreased about .05, while a corresponding increase has taken place over the south Atlantic and Gulf states. The highest barometric mean for the month, 30.11, is reported from Cedar Keys, Florida. The isobar of 30.05 extends from eastern Texas, northward to southern Illinois, and thence eastward to the North Carolina coast, inclosing the short isobar of 30.1, which is traced near the northern boundary of Florida. Southward from Cedar Keys, the pressure decreases to 30.09 at Key West. On the north Pacific coast the isobar of 30.0 extends from the coast of southern Oregon northeastward to the northern boundary of Washington territory. The area of least mean pressure covers Utah, Colorado, Arizona, and a part of New Mexico, and is inclosed by the isobar of 29.85. The lowest barometric means, 29.79 and 29.80, are reported from Yuma, Arizona, and West Las Animas, Colorado.

The mean pressure of July, compared with that of June, shows decreases varying from .01 to .05 in the middle and north Pacific coast regions, and from .01 to .09 over the Canadian Maritime provinces, New England, and the northern portion of the middle Atlantic states. In all other parts of the country the mean pressure is greater than that of the preceding month. Over the Rocky mountain districts, the extreme northwest, Missouri valley, the eastern part of the lower lake region, and on the Atlantic coast south of New Jersey, the increase varies from .01 to .05. Over the remainder of the country, where an increase has taken place, the departures vary from .05 to .12, being greatest in the Rio Grande valley.

DEPARTURES FROM THE NORMAL VALUES FOR THE MONTH.

Over the Rocky mountain regions, Ohio valley, middle Atlantic and southern states, the mean pressure is above the normal for July. The departures in these districts are generally less than .05, the only exceptions being .06 at Galveston, Texas; .07 at Fort Shaw, Montana, and .08 at Brownsville, Texas. The pressure is below the normal in southern California, the north Pacific coast region, over the northern districts from New England westward to Dakota, in the Missouri valley, eastern Colorado, and northern Texas. The only departures exceeding .05 in the districts where the deficiencies occur, are .06 at Port Huron, Michigan, and .08 at Duluth, Minnesota.

BAROMETRIC RANGES.

The monthly barometric ranges have been greatest in the extreme northwest and in the northern part of the upper lake region, where they have varied from .73 to .85. They are least in the southern states, Rocky mountain districts, and in California. The stations reporting the smallest ranges are Key West, Florida, .18; and Fort Apache, Arizona, .25.